The association between venous thromboembolism and physical inactivity in everyday life

Seems to be small and slightly higher than that for oral contraceptive use

Observational studies have shown that several lifestyle choices and habits, such as eating too much refined sugar or drinking more than one glass of wine a day, may have adverse health effects. The linked prospective cohort study by Kabrhel and colleagues adds inactivity to this list of sins. The study followed 69 950 female nurses for an average of 18 years. Those women who were the most inactive, defined by the number of hours of sitting a day (>41 hours a week outside of work), were two to three times more likely to develop otherwise unprovoked venous thromboembolism (VTE), which manifested as pulmonary embolism, than women who spent the least amount of time sitting (<10 hours a week outside of work). The association remained robust after controlling for other risk factors for VTE such as increasing age, body mass index, and concomitant disease, and was not mitigated by periods of physical activity and exercise.

If the findings are valid they may have major public health ramifications. The study also showed that physical inactivity correlated with coronary heart disease (spanning from 1.2% to 5.1% across fifths of physical inactivity) and hypertension (from 18% to 25%). Prolonged periods of physical inactivity could be one of the hidden mechanisms that link arterial disease and venous disease.

Before raising alarms about the implications of the results, several questions about the study need to be explored. Firstly, is the association between inactivity and VTE valid? Secondly, if valid, can anything be done to mitigate the risk of VTE? This question is important because VTE is often clinically silent and its initial manifestation may be life threatening pulmonary embolism. Thirdly, if the answer to both of these questions is yes, are public health initiatives needed to increase activity levels outside of work?

The validity of an association between a putative exposure (inactive) and an outcome (VTE) rests on several factors. The first is whether the association is biologically plausible; in this case, increased sitting may promote venous stasis and coagulation activation, as shown by an increase in D-dimer concentrations or other markers, which recently have been identified as potential determinants of VTE. Indeed, recent studies have looked at whether conventional cardiovascular risk factors, such as the metabolic syndrome, contribute to VTE as they do with arterial vascular disease.

Furthermore, even with the most robust multivariable analysis, it may be unclear which variables are causal effectors and which are epiphenomena. For example, at baseline inactive women were more often affected by coronary artery disease, so was physical inactivity the trigger or the consequence? On balance, however, the study findings seem to favour an association between physical inactivity and VTE.

On a practical level, is the risk of VTE with physical inactivity modifiable, and if so, is it worth modifying? Changing the level of inactivity (or sitting) would be an easy and inexpensive intervention to prevent potentially life threatening pulmonary embolism. For example, varicose veins and treatment with oestrogen, which are risk factors for VTE in women, were not accounted for but are unlikely to be linked with inactivity. There may be unmeasured confounders—for example, were women with VTE more likely to have lipid disorders or raised inflammatory markers, which recently have been identified as potential determinants of VTE? Indeed, recent studies have looked at whether conventional cardiovascular risk factors, such as the metabolic syndrome, contribute to VTE as they do with arterial vascular disease.

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cases of VTE a year seen in users of oral contraceptives. Furthermore, those at highest risk sat, on average, for six hours a day outside of work, which seems excessive, and only about 5% of nurses studied fell into this risk group. However, it is important to note that if deep vein thrombosis had been documented the incidence of VTE associated with inactivity would have been higher.

Overall, the study reinforces the notion that prolonged inactivity increases the risk of VTE, and it shows how this occurs in everyday life. The findings also indirectly support the use of preventive interventions for at risk people with prolonged immobility, typically patients in hospital, in whom anticoagulants to prevent VTE remain underused. For otherwise healthy people, the take home message may be to apply the ancient Greek proverb of “métro n áriston” or “moderation is best” to both our activity and inactivity.


NSAIDs and atrial fibrillation

The risk is unproved, but NSAIDs should be used with caution in high risk patients anyway

More than two million Americans and more than four million people in the European Union have paroxysmal or persistent atrial fibrillation. Its prevalence increases dramatically with advancing age, rising from 0.1% in adults younger than 55 years to 9.0% in those aged 80 or more. Atrial fibrillation is associated with an increased long term risk of stroke, heart failure, and death. The healthcare costs related to this condition are substantial, largely as a result of hospital admissions, consultations, diagnostic and therapeutic procedures, and drug treatments. Many patients with atrial fibrillation need lifelong treatment with oral anticoagulants for stroke prevention, which requires careful dosing and laboratory monitoring; safety concerns about the risk of bleeding persist for these patients even under the most ideal systems of care. For these reasons, any opportunity to reduce the risk of atrial fibrillation, particularly in older adults, would be welcome. In the linked case-control study, Schmidt and colleagues describe an association between the use of non-selective NSAIDs or selective COX 2 inhibitors and atrial fibrillation or flutter.1

In 2008, an expert panel convened by the National Heart, Lung, and Blood Institute highlighted that although treatments for atrial fibrillation have been studied extensively, prevention has received relatively little attention. Modifiable risk factors include hypertension, diabetes, obesity, and smoking. Predisposing clinical conditions include heart failure, myocardial infarction, valvular heart disease, thyroid disease, and sleep disordered breathing. These risk factors and predisposing conditions probably interact with various non-modifiable risk factors including age, sex, race, and genetic factors.

The identification of drug related precipitants of atrial fibrillation adds an interesting new dimension to its prevention. Using administrative data for a Danish population from 1999 to 2008, Schmidt and colleagues examined the risk of atrial fibrillation or flutter associated with the use of non-selective NSAIDs or selective COX 2 inhibitors. After adjustment for age, sex, and selected risk factors for atrial fibrillation, they found a significant increase in the risk of atrial fibrillation or flutter with current drug use compared with no use (non-selective NSAIDs: adjusted odds ratio 1.17, 95% confidence interval 1.10 to 1.24; COX 2 inhibitors: 1.27, 1.20 to 1.34). Risks were greatest for new users compared with non-users (non-selective NSAIDs: 1.46, 1.33 to 1.62; COX 2 inhibitors: 1.71, 1.56 to 1.88), but much less strong for long term users compared with non-users (non-selective NSAIDs: 1.05, 0.98 to 1.13; COX 2 inhibitors: 1.10, 1.03 to 1.18).

An association between use of NSAIDs and atrial fibrillation has important clinical and public health implications because of the high prevalence of use of these agents, particularly among older adults, and the increasing prevalence of atrial fibrillation with advancing age. The validity of the study’s findings must be carefully considered, however, because case-control studies are susceptible to unmeasured confounders, potentially limiting the inferences that can be drawn from the results. Adjusting for covariates modestly reduced the strength of the associations between the use of non-selective NSAIDs
One of the main arguments used to justify major reform of the NHS is the potential cost of an ageing population. The United Kingdom is not alone; the number of people aged over 65 in the European Union will almost double over the next 50 years, and there will be only two people of “working age” for each person over 65 compared with four today. It is estimated that this could cost EU countries as much as 15-40% on top of current expenditure to maintain existing health services. So how is Europe collectively responding?

EU leaders (including those from the UK) are pinning much hope on “innovation”—speeding up the process of bringing new ideas from research to practical application. By bringing together government officials, industry, health professionals, and other stakeholders from across Europe, the commission hopes to find ways of removing bottlenecks and speeding up the application of science in practice. The first meeting of the partnership’s steering group was held in May; its concrete priorities for specific research, development, and deployment, and the necessary support, are due later this year. These could include better tools for early diagnosis of heart disease, for example, or using remote monitoring to help people with chronic conditions take care of themselves more independently.

The proposed benchmark for this partnership is to add two years of life in good health to the European average by 2020. Long term trends of improving life expectancy suggested that this was likely to be achieved with no additional intervention. However, the commission’s recent figures are not encouraging, with the most recent data published in March 2011 showing a fall in average European healthy life expectancy by 0.3 years for women and 0.6 years for men between 2007 and 2008.

The most important element of this benchmark, however, is not the precise figures or even whether they are achieved. It is the commitment by all EU countries to work together with health professionals and other stakeholders to meet...
The challenge of ageing. This does not change the primary responsibility of countries for their own health systems. Nevertheless, the partnership’s public consultation (which ran from November 2010 to January 2011) identified common problems, such as fragmentation of funding (for example, between health and social care), lack of clear and accessible evidence about which new innovations work, complex regulatory requirements (such as uncertainty over which legislation applies to new technologies such as telemedicine), and failure to involve patients and professionals in the development of the new solutions they will be using. Each country can then use the collective European effort as a basis to tackle the local and specific challenges of their ageing population. What already exists can offer a great deal. Apart from any new solutions that this EU partnership may help to generate, there is already much scope for cross European learning to help health systems respond to healthy ageing. The European Observatory on Health Systems and Policies (a collaboration of international organisations, governments, and universities that supports evidence based policy making) has summarised evidence showing where European systems should focus for maximum improvement. This includes better coordination of care across health and social services, as well as within health systems; the targeting of priority conditions that create the greatest burden of ill health, such as hypertension, stroke, and dementia; better management of hospital admissions; and encouragement of better self care. It also highlights the scope for prevention—again, tackling the burdens from heart disease and stroke, flu immunisation, smoking and alcohol misuse, injuries from falls, healthy diet and nutrition, and inappropriate combinations of drugs for older people with multiple conditions. It also emphasises the importance of linking policies in the health sector to those in other sectors to create appropriate housing and living environments, and keeping people in work and involved in their communities. At a practical level, the observatory is sharing evidence through a summer school this July on the response of the health systems to the ageing crisis (www.observatoriesummerschool.org).

Although efforts are being made to deal with the problems across Europe and beyond, no single country has the answers, as the recent reports of the Care Quality Commission on failures in care for older people have highlighted clearly. While debates continue in England about the future organisation of the NHS, Europe is facing the same underlying challenge of ageing. Rather than focusing on the structure of the health service, England could benefit from applying good practices from other countries to close the gap in funding for its ageing population.

Response on bmj.com

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Patient information on prescribed drugs

New European legislation is a surprising and important step, but needs more work

According to draft legislation approved by the European Parliament in November 2010, people throughout Europe will be able to access basic factual information about prescribed drugs through channels other than doctors. Unless the legislation is rejected outright by the European Commission (which is unlikely), this apparently modest entitlement is an important step for European Union countries, including Germany, where information about drugs is available only through health professionals or by confronting the internet’s twin challenges of language and quality. There is much to welcome in the new measures, some important detail to be clarified, and elements that fall short of what is needed. In particular, the proposed legislation does nothing to facilitate the provision of credible

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“The legislative piece does little to meet the real needs of patients and consumers across the European Union, but goes a long way to soothe the requests of ‘reputable information providers’ such as the pharmaceutical industry.”
Teresa I Leonardo Alves, Coordinator Health Action International Europe

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France proposes overhaul of drug regulatory system
What have we learnt from the rosiglitazone saga?

To improve the practice of medicine, the European Union has taken its first steps towards the introduction of Medicines Guides. These are intended to provide patients with factual information about diseases and their treatments so that they can participate more fully in their healthcare decisions. However, the proposed legislation does little to meet the real needs of patients and healthcare professionals. Instead, it is a failure of imagination.

Some aspects of the current plans, as amended by parliament, remain confusing. Clarification is required about what information from clinical trials is covered and the right of patients to request further information from drug companies. In addition, inclusion of information about diseases as well as drugs in this proposal means that information on disease awareness and public health, and educational materials, might need vetting. Most health professionals and patient organisations would not be pleased by this requirement. Even if this anomaly is ironed out in later drafting, the vetting requirements could burden national regulators at a time when they need to concentrate on fulfilling their core responsibility to ensure public access to safe and effective medicines. The scale of this challenge is illustrated by two recent articles in the BMJ.1

The current proposal has a long and contentious history. The topic of information to the general public on prescription drugs has passed through multiple iterations, been debated endlessly in various EU committees, and—in different formats—has repeatedly been thrown out. Fjellner’s masterstroke was to recast the debate from the rights of patients to request further information from drug companies to supply information about their products—almost universally unpopular—to the rights of patients to obtain information about drugs from the manufacturers.

This formulation, with its strict definitions and controls, has proved acceptable even to countries uncomfortable with the idea of empowered patients and those whose prime motivation for resistance is fear of rising drug costs driven by a better informed and more demanding public.

In its anxiety to restrict the drug industry, the proposal misses the transformative power of the internet. Across Europe, people increasingly look to the web for information about health and drugs.4 Preventing the relevant knowledge and evidence from being made available online leaves information seekers more vulnerable to the dangerous nonsense of invisible and unregulated publishers. Simply mandating companies and regulators to post online copies of regulatory documents and expecting this to meet patients’ diverse information needs is a failure of imagination. These documents were not written for lay users, for web presentation, or, in the case of patient information leaflets, for anyone not prescribed that specific drug. Furthermore, such leaflets come in non-standard shapes, sizes, and formats, with web versions being unsuitable for people with visual impairments and notoriously difficult to read or print. Supplementing this meagre offering under strict limitations and with approval could hinder innovation and the development of resources needed to satisfy the range of people with different information needs. Rather than focusing exclusively on controlling the activities of companies, the proposal could be bolder in encouraging greater openness, to the benefit of patients. To start with, the package of information approved when a medicine is licensed by the regulator should include, alongside the mandatory documents, a set of data suitable for presentation in different formats on the web.

This EU proposal is a real advance for people in many countries of Europe, but it strengthens the dead hand of the regulators and gives responsible regulated information providers little opportunity or responsibility to present objective balanced information to combat the dangers of unregulated content online.

Competing interests: The author has completed the Unified Competing Interest form at www.icmje.org/coi_disclosure.pdf (available on request from the corresponding author) and declares: no support from any organisation for the submitted work; no financial relationships with any organisations that might have an interest in the submitted work in the previous three years; she is chairman of Datapharm Communications Limited, which publishes the medicines guides referred to in this article.

Provenance and peer review: Commissioned; not externally peer reviewed.

For the past two decades at least, successive governments have struggled with how to achieve an affordable and sustainable funding system for care and support in England. Following on from three previous reviews,1−3 on 4 July the Dilnot Commission published its report on this subject.4 The report concluded that the funding system for social care is broken and will get worse unless it is fixed. The system is confusing, unfair, and unsustainable. Urgent action is needed. Unlike the 1999 report from the Royal Commission on Long Term Care,5 the Dilnot review does not recommend “free personal care.” Instead, a new partnership is proposed between the individual and the state “where individuals need to take reasonable and appropriate responsibility, but the state provides protection for those with greatest needs.”

Since the establishment of the welfare state in 1948 health and social care have been separate in England. Over time the boundary between these has shifted, and what was once regarded as healthcare now often comes under social care. The implications are substantial—although NHS care is free at the point of need, social care is means tested. Many people have little or no awareness of this until such time as they or their family members need care, and the costs of paying for support can be devastating. People needing residential care have their care costs met by the state only when their assets and savings are below £23 250 (£25 750; £37 390), including property. About 20 000 people every year sell their homes to finance care, and assets and savings can rapidly vanish with care fees of several hundred pounds a week. Moreover, with the expansion of owner occupation it is not just affluent people who are affected, but those of moderate means whose only real asset is their home. Half of all people aged over 65 can expect costs of more than £50 000 and one in 10 will spend more than £100 000.

There are no other major risks in life where either the state does not accept responsibility (as with the NHS) or private insurance does not offer security (as with car or house insurance). Private long term care insurance failed to establish a foothold because products carried unaffordable premiums or were accompanied by clauses that rendered them worthless in covering the very situations where support was needed. The uncertainty of demographic demand, particularly around conditions such as dementia, has made the actuarial basis for the insurance industry far too volatile. The Dilnot Commission’s recommendations would introduce a cap on individual liability (at £35 000) and raise the upper threshold in the residential care means test to £100 000, so that more people would receive some help with care costs. Together, these changes would mean that instead of people facing potentially catastrophic costs, no one would lose more than 30% of their total assets. Only a minority of people would spend the entire £35 000, and beyond that amount, everyone’s care costs would be covered for however long they needed care. For people with few or no assets (and for disabled adults under 40), care would be free. Such changes would tackle one of the major problems in the current system, whereby people face uncertainty and the fear that they could lose everything.

With this greater certainty around the nature of risk, it is reasonable to assume that new financial services and products will emerge to allow people to protect their assets. Indeed, the report envisages that people will have greater choice about how they pay their share of care—whether this is through new models of equity release or from savings, pensions, or new financial products. Importantly (and politically, this is a vital point), people will pay only if they need care—this is not a new tax that is being proposed.

A further important point of partnership is that people moving into residential care would also be responsible for the costs of food, heating, and accommodation (just as they would if they lived at home). These “basic living costs” would be a flat and fixed contribution that everyone would pay if they could (typically through pension income and other benefit entitlements).

The report is clear that introducing these reforms will require additional state funding (an estimated £1.7bn) but argues strongly that this extra state funding will also unlock greater private resources. In a letter to the chancellor and the secretary of state for health, Dilnot argues that “without the state taking on some of the risk, individuals will be unable to use their assets effectively and the involvement of the financial services sector will remain limited.”6 As a highly regarded economist (who directed the Institute for Fiscal Studies for more than a decade), Dilnot’s financial credentials are self evident. His report argues that there is a growing gap between demand and expenditure in social care, which will continue to rise if nothing is done.

The Dilnot review does not start from a perspective of despair over the costs of an increasingly ageing population, which often characterises debate in this field, but from an assertion that greater life expectancy should be celebrated as an achievement. The timing of the report is challenging, coming during a period of unprecedented financial pressure on public expenditure, and there are fears that yet again the Treasury will baulk at the costs of reform, as did the last administration in 1999 in far more favourable economic times. It is imperative that this does not happen and that a consensus is established that takes the funding of social care out of party politics and enables a way forward that is fair, transparent, and sustainable.